

[Intern. J. Pharmaceutics, 75, 25-36 (1991)]

[Lab. of Pharm. Engineering]

**Preparation and characterization of a new controlled release ibuprofen suspension for improving suspendability.**TOSHIKI KAWASHIMA\*, TARO IWAMOTO, TOSHIYUKI NIWA,  
HIROFUMI TAKEUCHI, YOJI ITO

A new controlled release suspension of ibuprofen was developed by using ibuprofen microspheres with an acrylic polymer (Eudragit RS-PM™). Uniform dispersibility of the microspheres for a period of more than 6 months could be obtained in a low viscous acidic solution of sodium carboxymethylcellulose (CMC) by the addition of D-sorbitol. The presence of D-sorbitol in the acidic medium increased the adsorbed amount of CMC on the microspheres and contributed to build the loose three-dimensional networks of CMC.

[J. Colloid Interface Sci., 145, 512-523 (1991)]

[Lab. of Pharm. Engineering]

**Shear-Induced Phase Inversion and Size Control of Water/Oil/Water Emulsion Droplets with Porous Membrane.**YOSHIKI KAWASHIMA\*, TOMOAKI HINO, HIROFUMI TAKEUCHI,  
TOSHIYUKI NIWA, KATSUHIKO HORIBE

A water/oil/water (w/o/w) emulsion was prepared with liquid paraffin, hydrophobic (Span 80) and hydrophilic (Tween 20) surfactants. When the emulsion was extruded through a polycarbonate membrane possessing pores of 3 or 8  $\mu$ m in diameter, the extruded emulsion became semisolid. This semisolid emulsion proved to be a w/o emulsion judging from dispersibilities into water and chloroform, changes in percentages of trapped markers initially added to inner and outer aqueous phases, and observation of electron microscopic photographs.

[J. Soc. Powder Technology., 28, 562-566 (1991)]

[Lab. of Pharm. Engineering]

**Particle Design of Adhesive Pharmaceutical Powders for Direct Tableting by the Novel Emulsion-Solvent-Diffusion Method.**YOSHIKI KAWASHIMA\*, HIROFUMI TAKEUCHI, TOSHIYUKI NIWA,  
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The novel emulsion-solvent-diffusion technique developed by the authors was proved to be a versatile particle design method to improve the particulate properties of adhesive pharmaceutical powders for direct tableting, irrespective of the crystallization solvent system employed, viz. miscible or immiscible good-poor solvent system. The spherically designed agglomerates of the crystals with the miscible solvent system were free flowing and easily packable into a die, which were directly compressed into a tablet without any capping even at higher compression pressure.